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presentation reports on using TR for model updating to predict adulterant oil concentration, the methods are applicable to updating multivariate analyses distinguishing adulterated samples from pure extra virgin olive oil. Additionally, the approaches are general and can be used with other spectroscopic methods and adulterants as well.

On-line Monitoring of the Transesterification Reaction Between Triglycerides and Ethanol Using Near Infrared (NIR) Spectroscopy. R. Richard^{1,2}, B. Dubreuil^{1,2}, S. Thiebaud-Roux^{1,2}, L. Prat³, ¹Université de Toulouse; INPT; LCA (Laboratoire de Chimie Agro-Industrielle); ENSIACET, F-31030 Toulouse, France, ²INRA; LCA (Laboratoire de Chimie Agro-Industrielle), F-31030 Toulouse, France, ³Université de Toulouse; INPT; CNRS; Laboratoire de Génie Chimique; UMR 5503, F-31030 Toulouse, France

To substitute fossil fuels, biodiesel can be produced from vegetable oils, animal fats, and waste cooking oils by transesterification with ethanol. Various factors such as free fatty acid content, water content, type/amount of catalyst, vegetable oil to alcohol molar ratio, or temperature can affect this process. Many analytical procedures using gas chromatography and high performance liquid chromatography have been developed to determine the composition of crude transesterification products but these techniques are long to handle, unreliable and expensive methods of on-line monitoring. In this work, an innovative method using NIR spectroscopy to on-line monitor the transesterification reaction of high oleic sunflower oil with ethanol in a one-liter-batch reactor was developed. Partial least squares regression was used to develop calibration models between NIR spectral data and analytical data obtained by a reference method: gas chromatography with flame ionization detection (GC-FID). The results indicated that the use of NIR spectroscopy is an appropriate technique to research optimal reaction parameters and obtain kinetic data for a range of temperature from 30°C to 80°C. It was also shown that the water content in ethanol or oil has a negative influence on ethyl ester production.

Using Fourier Transform Near Infrared (FTNIR) in Evaluation of Monoacylglycerides and Propyleneglycolmonoester in Edible Fats and Oils. Gabriela Sekosan, Tiffanie West, Bunge North America, Bradley, IL, USA

A rapid and new method for the quantitation of the amount of monoacylglycerides, α -monoacylglycerides and propyleneglycolmonoester in both emulsifier and oils and fats containing emulsifiers, was developed using NIR. For the calibration of the instrument more than 100 samples with ranges of 0-75% were used. The new method reduces the preparation and analysis time from 3 hours to less than 10 minutes and is eliminating the solvent use.

Analysis of Epoxidized Soybean Oil using Fourier Transform Near Infrared Spectroscopy (FT-NIR). H. Li¹, M. Ochs², M. Gulden², ¹Bruker Optics, Inc., USA, ²CHS, Inc., USA

Epoxidized soybean oil (ESBO) is widely used as a plasticizer and heat stabilizer for polyvinyl chloride (PVC) plastics. There are several parameters used to control the epoxidation process and the quality of the finish product. Iodine value (IV) is used to help determine when all the carbon-to-carbon double bonds have been opened and when to stop the reaction. Moisture content is used to determine the moisture residue in finish product from the washing procedure, of which the value should be very low since water can cause degradation of epoxide group. The